

PENN METAL PRODUCTS

LEO
METAL FIREPROOFING
FOR
MODERN BUILDINGS

E. COREY,

::

::

Portland, Maine

Stucco &
Girders, etc.

22-12



THE PENN METAL CEILING AND ROOFING CO., LTD., BOSTON, MASS.

PENN METAL PRODUCTS

(DEPARTMENT)

EVERY LIBRARY
COLUMBIA UNIVERSITY

Plaster Reinforcement

METAL LATH

METAL CORNER BEAD

METAL STUD



New England Sales Offices

Concrete Reinforcement

TRIANGLE MESH

HEAVY
EXPANDED METAL

TRUSSIT

THE PENN METAL CEILING AND ROOFING COMPANY, Ltd.

Rooms 403 to 407

BOSTON SAFE DEPOSIT AND TRUST COMPANY BUILDING

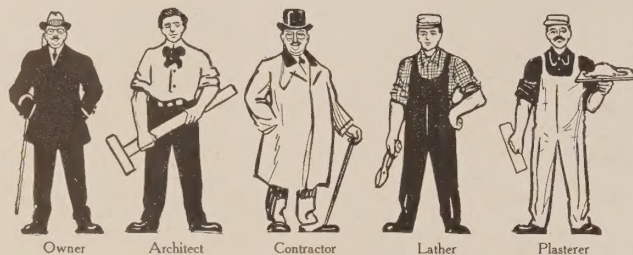
BOSTON, MASS.

ca. 1920

22-88B

very special

THE PENN METAL CEILING AND ROOFING CO., LTD., BOSTON, MASS.



A TALK TO BUILDERS

AND PEOPLE INTERESTED IN BUILDING CONSTRUCTION

THE use of metal lath goes a long way toward making the building fireproof. The space between the studs, if faced on the two long sides with seasoned wood lath, acts as a flue, and mice and matches frequently start a fire. With metal lath the mice, in the first place, cannot get through the wall, and in the second place there isn't fuel enough to start a fire if they did. With fire once started in a room, a partition lathed with wood has too much kindling about it to afford much resistance, but a metal lathed partition, even if the studs are wood, will hold the fire for a considerable time.

Even the best wood lath will shrink and swell somewhat with changes of moisture in the room. The key on wood lath is comparatively far apart, and the plaster depends in a large degree on its adhesion to the wood. As the mortar is absolutely inelastic, the continual working of the lath, even though the movement is only microscopic, in time breaks this adhesion, while the occasional swelling of the wood pinches the key and breaks it. We, therefore, find large areas of plaster on wood lath coming loose, particularly on the ceilings of kitchens or bath rooms where occasionally exposed to steam, or in situations where the floor above is sometimes wet.

Such trouble never occurs when **Penn Metal Lath** is used. The key is continuous over the entire back of the wall. Expansion is only due to temperature, and the rate is the same as for the plaster. Even the unequal settlement of the building will not, except in extreme cases, cause the plaster to show cracks. This is because the metal, being lapped on the edges and at the ends, acts as a continuous reinforcement throughout the whole wall, and the tendency to crack is, therefore, not localized, but is distributed evenly, and the resultant cracks are, therefore, so small as to be invisible.



Suppose Sargent had decorated a wall plastered
on wood

CLASSICS
AT
910
R381
1911

Penn Expanded Metal Lath

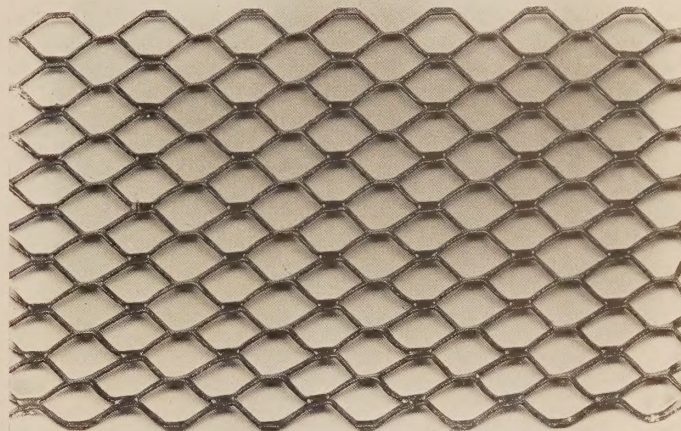
This is the age of fireproof construction—of STEEL construction.

When fire guts a modern building, the loss is comparatively small if the **walls** remain sound and intact; and it is, therefore, of greatest importance that the walls be constructed of fireproof material throughout.

Penn Expanded Metal Lath takes the place of inflammable wood lath, and is now an approved building material.

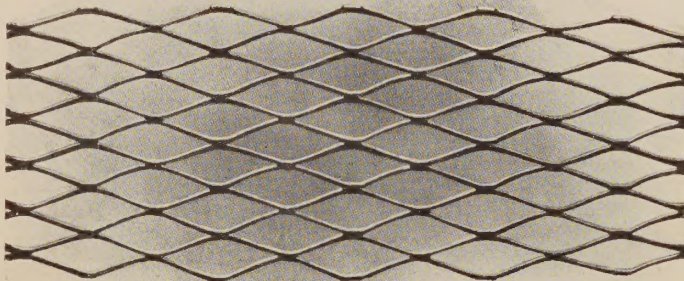
Protection against fire is the first important advantage of **Penn Expanded Lath**, but by no means the last. Rats and mice cannot gnaw through metal lath; cannot weaken the wall or infest the building.

Vermin finds no lodging in metal lath as in wood.



DIAMOND E

Sheets 18 in. x 96 in. Packed 15 sheets, 20 square yards to a bundle.
24 Gauge, weight 3 pounds to square yard.
26 Gauge, weight 2½ pounds to square yard.
27 Gauge, weight 2¼ pounds to square yard.



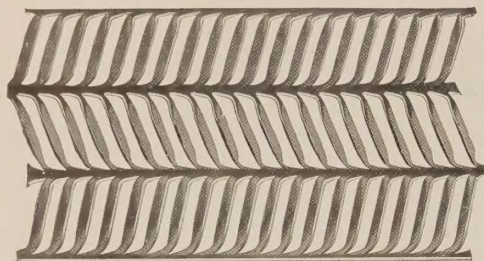
DIAMOND D

Sheets 24 in. x 96 in. Packed 10 sheets, 17 2-3 yards to a bundle.
24 Gauge, weight 3 1-10 pounds to square yard.
26 Gauge, weight 2 6-10 pounds to square yard.
27 Gauge, weight 2 1-3 pounds to square yard.

Penn Metal Lath does not absorb moisture and swell, warp, bulge or stain the plaster. The use of **Penn Lath** does away with many of the common plaster troubles.

The key or bond of **Penn Lath** is the most perfect yet devised and yields results not obtainable with any other metal lath on the market. A superior bond with plaster is accomplished by means of the special slanting strand and the slant in the bond between the meshes.

Penn Metal Lath, is not merely a background, but a thorough **reinforcement** to the plaster, which completely surrounds the metal, **leaving no chance for exposure to rust or heat.**



(Patented)

Style "A"

Sheets 14" x 96" - - - 1 square yard
 Size of mesh - - - - 3-16" x 1"

WEIGHT PER SQUARE YARD

Style "A" - - - - - 3 lbs.

Packed 20 sheets (20 sq. yards) to the bundle

This is the only lath made which is particularly designed to meet the trying conditions ever-present in ceiling work. Its wide strands and small mesh prevent the plaster from dropping off when applied, while its peculiar construction, together with its extra heavy weight, afford the rigidity necessary to support the weight of the plaster without danger of sagging between the studs.

It is equally suitable for all classes of work.

Herringbone Expanded Metal Lath

There is a series of heavy ribs in "Herringbone" lengthwise of the sheet. These ribs rest with the lower edge against the studding or furring and hold the lath rigid, so that it does not buckle or "belly." This saves labor, material, temper and money.

The small cross ribs are twisted to present a flat surface to the trowel, spreading the mortar instead of cutting it and causing them to be completely enveloped, preventing corrosion and forming a key that is perfect.

Have you thought about cement siding (stucco or cementine) for residences? Send a postal for catalog. We will show you how adaptable **Metal Lath** is for this type of building.



(Patented)

Style "BB"

Sheets 20 1/4" x 96" - - - 1 1/2 square yards
 Size of mesh - - - - 7-32" x 1 1/8"

WEIGHT PER SQUARE YARD

27 gauge - - - - - 2 1/4 lbs.
 26 gauge - - - - - 2 1/2 lbs.
 24 gauge - - - - - 3 3/8 lbs.

Packed 15 sheets (22 1/2 sq. yards) to the bundle.

This grade is recommended for all classes of work, except ceilings.

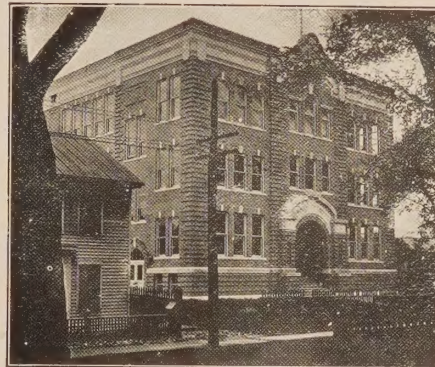
"Herringbone" is also made from **American Ingot Iron**, which is 99.94% pure and which makes it the most non-corrodible and rust-resisting lath on the market.

No. 19 Wire Cloth



Galvanized.

Rolls 150 feet long, 3 feet wide. 50 square yards to a Roll.



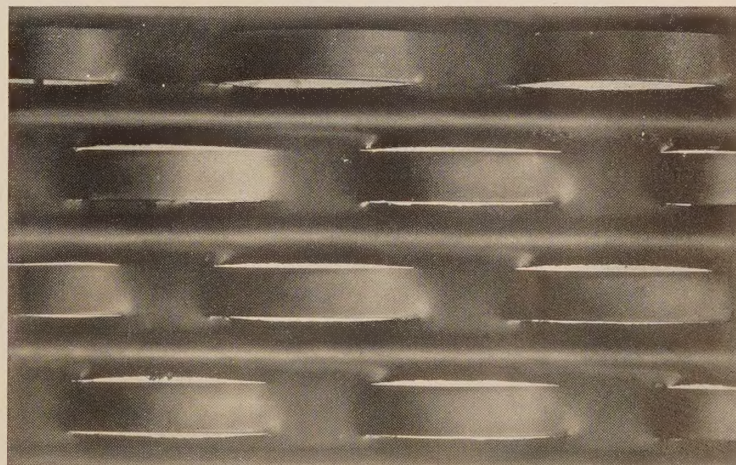
School at Waterbury, Conn.
Sheet Lath Used Throughout



Bay State Bank Building, Lawrence, Mass.

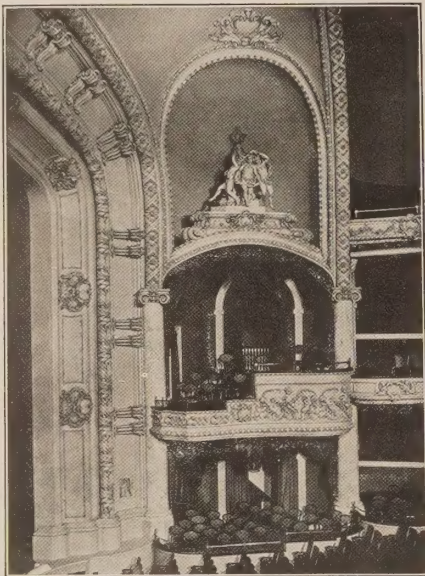
162,000 square feet Sheet Lath used in this building

Boston Sheet Lath

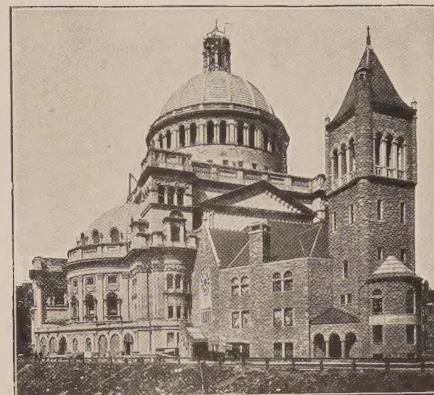


The Strongest Lath on the Market. Painted on both sides. Requires one-half the amount of mortar of other laths. Lath can be placed on 16 or 18 inch centers. Sheets 24 x 96 inches. Sheets packed in a bundle of 16 square yards. Weight 4 1-2 pounds to square yard.

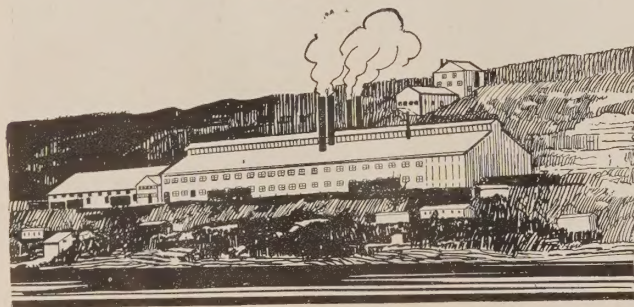
Examples of Interior and Exterior Plaster and Cement on Penn Expanded Metal Lath



Keith's Theatre, Portland, Me.
Example of Metal Lath for Interior Work. All Plaster and Stucco Work, Columns, etc.,
on Penn Expanded Metal Lath



Christian Science Church, Boston, Mass.
12,000 Yards of Penn Expanded Lath Used



A Cement-Sided Factory
Built With Herringbone Lath

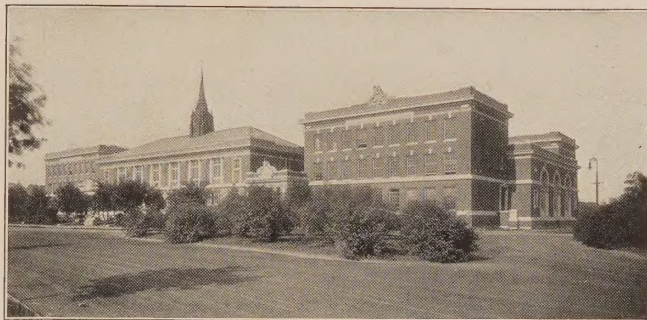


Residence, Portland, Maine
Penn Expanded E Lath Used for Outside and Inside
Construction

THE PENN METAL CEILING AND ROOFING CO., LTD., BOSTON, MASS.

Peabody
& Stearns
Architects

225,000 sq.
ft. Penn
Expanded
Lath and
20,000 ft.
Hunt
Corner
Bead in
these
buildings

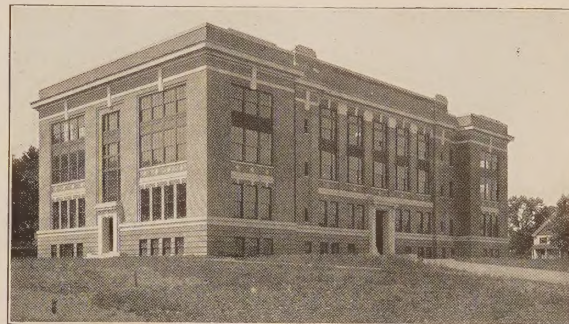


Normal and Latin School Group, Boston, Mass.

Hill, James
& Whittaker
Architects

72,000
square feet
Herring-
bone Lath
used

10,000 ft.
Hunt
Corner
Bead used



Wellesley High School

Metal Lath in Schools



Newton Technical School, Newtonville, Mass.

Geo. F. Newton, Architect

Penn Expanded Metal Lath
used throughout this building

Cooper & Bailey
Architects

135,000 ft.
Penn Expanded
Lath and 12,000
feet of Hunt
Corner Bead
placed
in this building



Malden High School

R. C. Sturgis
Architect

Woodbury & Leighton
Builders

90,000 square feet
Penn Expanded
24 Gauge Lath
used here



Franklin Trade School, Boston, Mass.



HERE is an interesting comparative cost of a cement stucco three flat building, against a similar three flat building made from wood. Following is a cement mixture used on this building. Outside walls are lathed with **Penn Expanded Metal Lath**, applied directly to wood stud:

Scratch Coat: Four pounds of hair to one barrel of putty, one barrel sand and one bag Portland Cement. (1-4)

Second Coat outside: One Portland Cement and two sand.

Back Plaster: One cement to four mortar.

The total cost, including Metal Lath in place, etc., was 95 cents per square yard, against \$1.10 per square yard for wood, same building.

Now then, this means not only economy in building, but also less insurance rates and more attractive and sanitary construction, together with a fireproof protection. In almost every locality materials used in this cement mixture can be very readily and quickly obtained.

This form of construction is so well known today to the average contractor that it has passed its experimental stage and is now down on a basis where it can be applied economically.

Old Residences Made New

OWNERS of dilapidated dwellings of frame construction will be interested to learn that the exterior of their houses can be easily and effectively transformed into an attractive cement plaster house.

The process is simple and inexpensive, as good results can be assured by employing any skilled plasterer or cement worker. It is, however, important to secure the services of a good architect to look after the best designs for general appearance.



The same residence after alterations and overcoating with cement plaster



Residence as it appeared before overcoating

Such treatment will give a house all the advantages of a new stucco or cement construction, while the exterior appearance is beautiful and up-to-date. The old interior arrangement need not be destroyed or changed in the least.

All over the country the most fashionable residences are constructed in cement plaster. This is due to the extreme efficiency of material from both first cost and maintenance economy.

Send us a line and let us tell you what you can do with the large and complete line of these materials that we keep on hand at our warehouse at all times.

Uniform Specification for Iron Furring and Metal Lathing

CEILINGS

All ceilings shall be hung to the roof beams or slab with 2" x $\frac{1}{4}$ " hangers where bending is required, and 1" x $\frac{1}{4}$ " hangers where straight not more than 4 feet on centers, to which shall be bolted 2" x $\frac{1}{4}$ " bar purlins punched to receive the $\frac{3}{4}$ " or 1" channels, or 2" x 2" x $\frac{1}{4}$ " angles may be used and the channels clamped to same. The channels are to be spaced not more than 12" on centres where **Penn 24 Gauge Expanded Metal** is used, but may be spaced 16" on centers if "**A**" **Herringbone Lath** is used.

Where wood beams occur the channels are to be held up by 1" x $\frac{1}{8}$ " clamps nailed into sides of beams with two nails. Staples driven into bottoms of beams over channels will not be accepted.

Where the supports for channel iron are more than 4 feet apart 1" iron must be used.

Metal Lath must be cut from **24 Gauge** sheets and weigh at least 3 pounds to square yard.

PARTITIONS

Thin partitions around ducts and where else shown are to be made of channel iron spaced not more than 12" on centers, thoroughly fastened top and bottom. Where the height is 10 feet or less use $\frac{3}{4}$ " iron, and over 10 feet use 1" channel iron. The studs are to be then lathed on one side with **Penn**

Expanded Metal Lath, or channel iron may be spaced 16" on centers if "**BB**" **24 Gauge Herringbone Lath** is used.

Where thick partitions are shown use **Penn Metal Studs**, spaced not more than 12" on centers and rigidly fastened top and bottom. Lath on each side with **Penn 24 Gauge Metal Lath** and leave strong and true, ready for plastering.

WALL FURRING

The inside of all exterior walls shall be furred and lathed on the brick. First put up $\frac{3}{4}$ " channels on edge horizontally, and to these fasten $\frac{3}{4}$ " channel iron or $\frac{7}{8}$ " **Penn Prong Studs** 12" on centers, and then lath with **Penn 24 Gauge Expanded Metal**, or the vertical channels may be spaced 16" on centers if "**BB**" **24 Gauge Herringbone Lath** is used.

MISCELLANEOUS FURRING AND LATHING

All pipe chases or other places where furring and lathing are required to properly finish the plastering shall be furred and lathed as required.

CORNICES AND FALSE BEAMS

All cornices and beams shall be formed of brackets made of 1" x $\frac{1}{8}$ " band iron or channel iron. Brackets to be spaced not more than 12" on centers and strengthened longitudinally with $\frac{3}{4}$ " channel. Lath with **No. 24 Gauge Penn Expanded Metal**.

Fig. 6

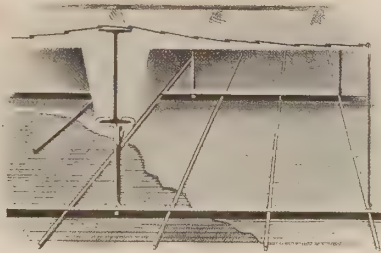


Figure 6

Re-inforced Concrete Floor, using Expanded Metal or Triangle Mesh Reinforcing. Beams fireproofed with cement and metal lath and plaster ; ceiling suspended from soffit of beams. This type of construction is used when it is desired to conceal the overhead floor beams.

Figure 7

This construction is similar to that shown in Figure 6, except that the structural floor beams are not fireproofed with concrete. The suspended ceiling shown ordinarily gives the floor beams sufficient fire protection.

Fig. 7

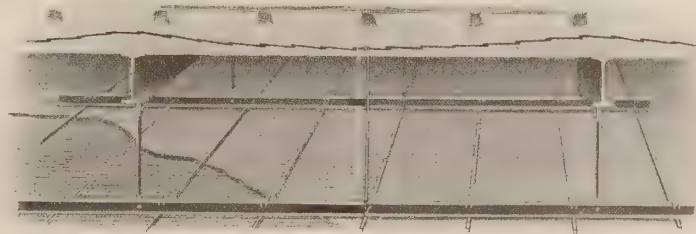


Fig. 8

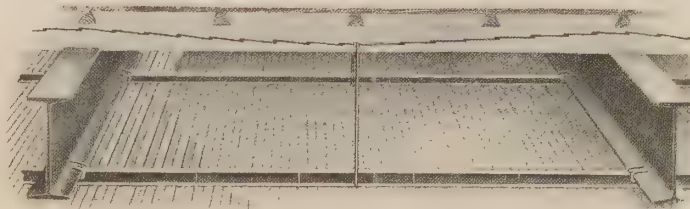
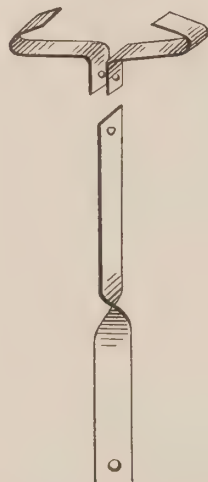


Figure 8

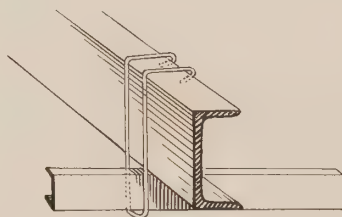
Illustrates what is known as a clamped ceiling and is used for the same purpose as in Figures 6 and 7. Either of these constructions allow of the running of pipes, electric wires, etc., between the floor and ceiling. Ceilings shown in Figures 6 and 7 are used extensively when it is necessary to conceal heat and vent pipes, etc.

Fig. 1



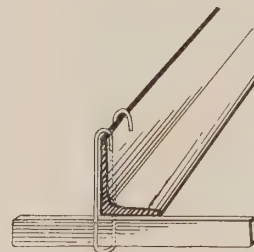
Standard Hanger for Suspended Ceilings. Can be made any length and to fit any size I beam. Made from 1" x 3-16" steel.

Fig. 2



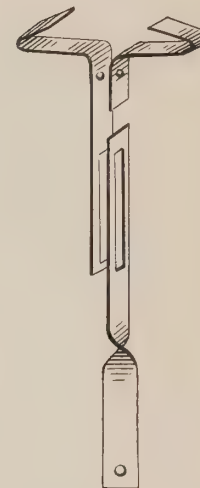
Light Channel Furrings fastened to Channel Beams with 1-4" Wire Clips. Made to fit any size channels.

Fig. 3



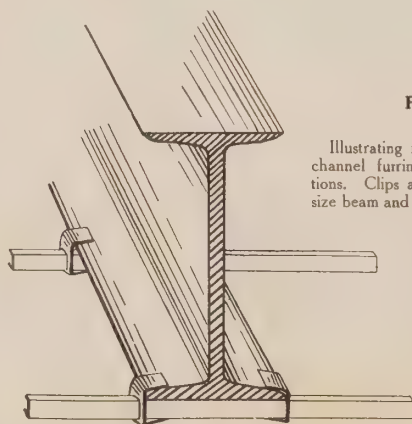
1-4" Wire Clips in connection with Angle Purlins

Fig. 4



Adjustable Hanger for Suspended Ceilings, under roofs where steel beams are pitched in different directions.

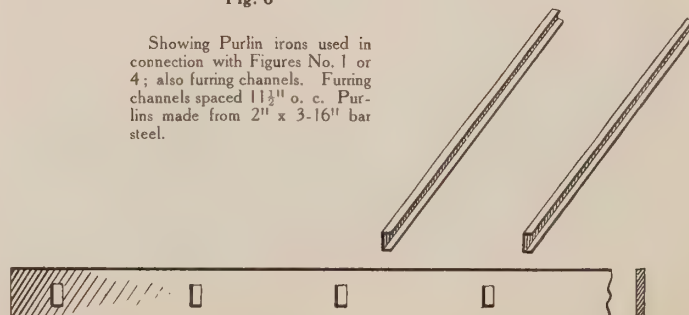
Fig. 5



Illustrating method of securing channel furrings to I beam sections. Clips are made to fit any size beam and furring channel.

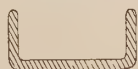
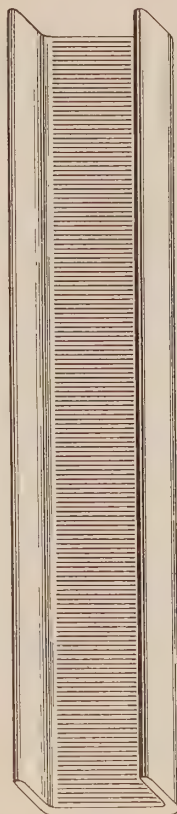
Fig. 6

Showing Purlin irons used in connection with Figures No. 1 or 4; also furring channels. Furring channels spaced 11 1/2" o. c. Purlins made from 2" x 3-16" bar steel.



Penn Cold Rolled Channel

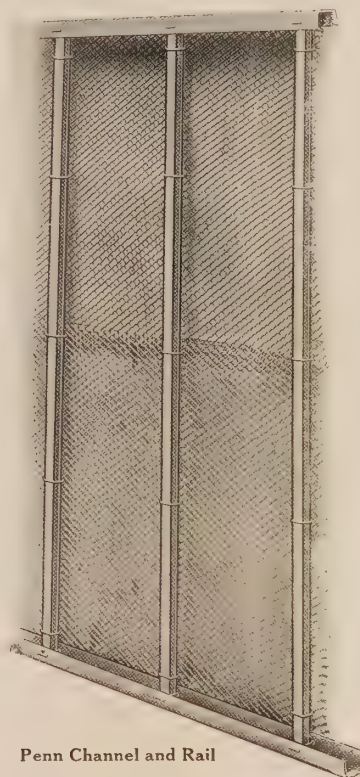
Cheaper and Stiffer Than Regular Channels. Made Especially for Metal Lath Furring



3-4 inch Channel

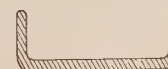
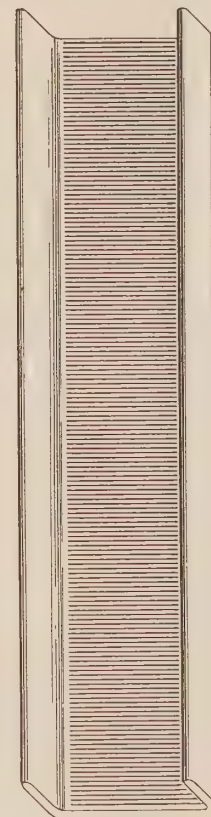
Full Size

276 lbs. 1,000 lineal feet



Penn Channel and Rail

Penn Cold Rolled 1 inch Channel and Metal Lath—solid partition
Penn Channel Rail for attaching to concrete floor or steel beam at ceiling



1 inch Channel

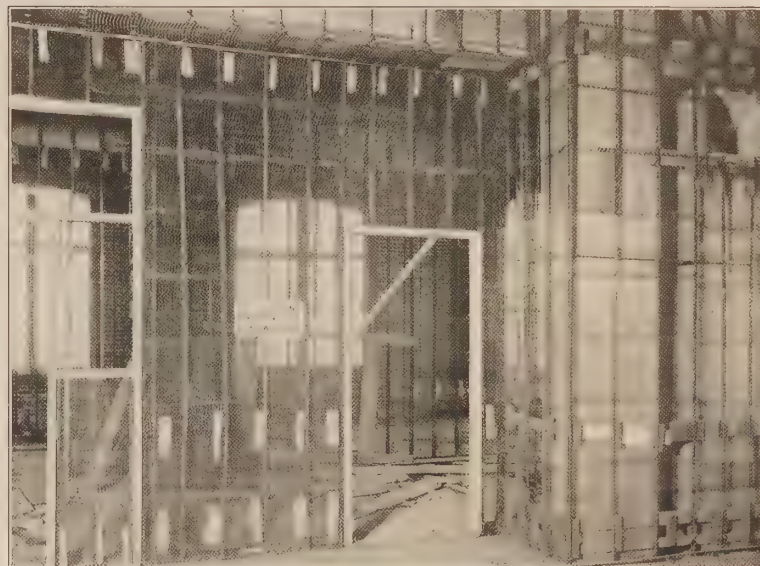
Full Size

345 lbs. 1,000 lineal feet

EVERY one of the great conflagrations of the last ten years has taught its lessons in fire protection, and that in all of these calamities, notably at Rochester, Baltimore and San Francisco, cement and steel should stand paramount in effective protection of property is significant. The magnitude of these disasters has attracted the highest talent of the engineering profession, and the results of the most painstaking investigations carefully analyzed by the great engineering societies of the country, indicate clearly that metal lath and cement plaster form the most effective partitions and protective coating for steel skeletons of buildings.

In the Baltimore conflagration, steel columns were stripped of their terra cotta coverings and hopelessly buckled. Heavily laden terra cotta tile floors fell through the ceilings under them, leaving large areas of metal lath dangling from the floor beams with the plaster still enmeshed.

== Penn Metal Stud ==



THE LITTLE PRONG IS THE LABOR SAVER

METAL LATH, as applied to Penn Metal Stud is fastened every three and one-half inches by prongs which are a part of the stud. This method eliminates lacing wires or clips, and insures a rigid and permanent construction. Lengths of Stud and Furring, ten feet.

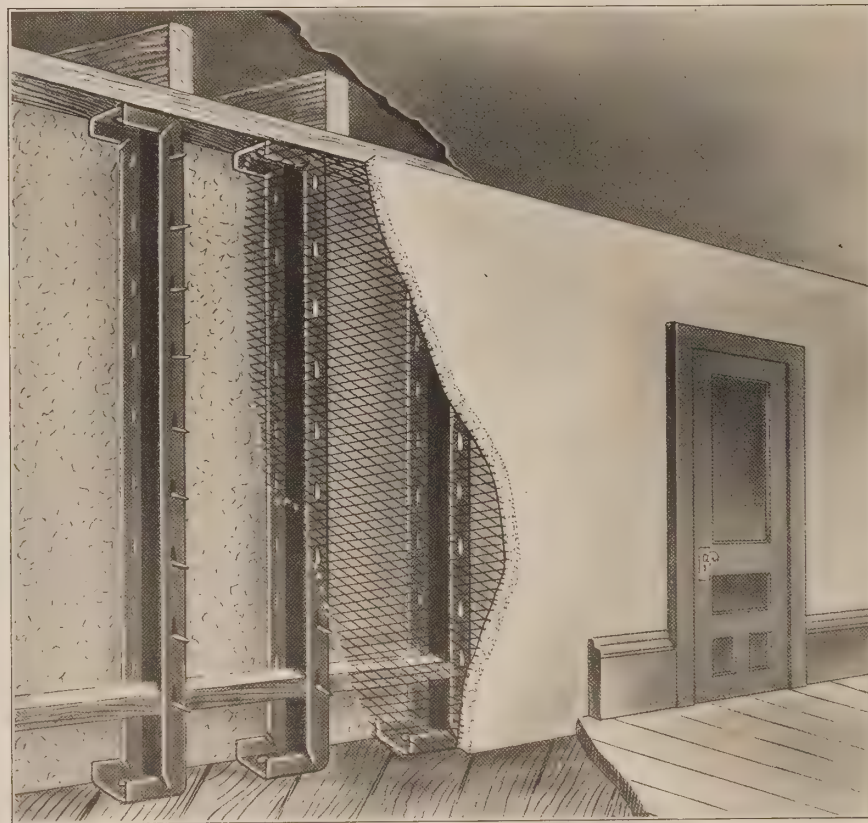
Penn V Stud and
Wall Furring

EASILY AND QUICKLY ERECTED
LIGHT IN WEIGHT AND STRONG IN RESISTANCE
FIRE PROOF VERMIN PROOF SOUND PROOF

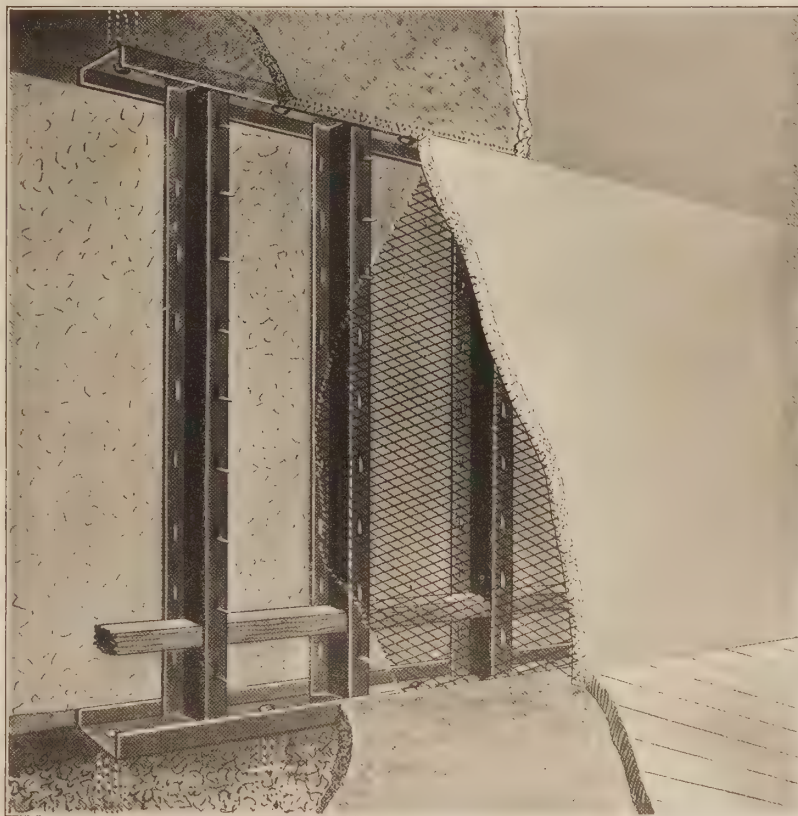
Penn Stud for
Hollow Partitions
Made 2, 3 and 4 in. wide

SHOWING method of fastening Double Studs to wood construction. Shoes are very easily turned on the ends. A shoe with a bearing of three inches on the floor and ceiling strip is sufficient to secure a very strong and rigid fastening.

Wood blocks between the studs are used for attaching wood trim. A light weight fireproof partition is thus obtained.



Hollow Partition on Wood Floor



Showing Hollow Partition on Concrete Floor

AN ECONOMICAL method of erecting this style of partition is by securing a stud to floor and ceiling forming a rail for attaching studs.

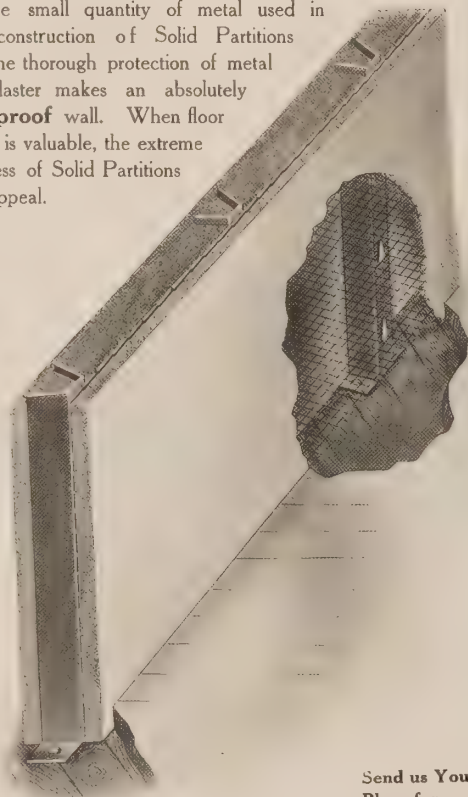
Penn Expanded Metal Lath is then applied to both sides of studs and plastered. The wood blocks shown between studs are for attaching base board.

Hollow partitions can be built to any thickness. Pipes, telephone tubes, electric wires, etc., can be run through this type of partition and thoroughly concealed.

This illustration shows partition fastened to concrete floor before cinder fill is put in place.

Solid Partition on Wood Floor

The small quantity of metal used in the construction of Solid Partitions and the thorough protection of metal by plaster makes an absolutely **Fireproof** wall. When floor space is valuable, the extreme thinness of Solid Partitions will appeal.



Send us Your
Plans for
Estimate



Penn Wall Furring Attached to Brick Wall

WALL FURRING is attached to brick walls by nailing through the holes in the furring. When covered with Penn Expanded Lath and plastered, air spaces are formed, which prevents moisture discoloring the plaster.



Triangle Mesh Steel Woven Wire Reinforcement is made with both single and stranded longitudinal or tension members. That with the single wire longitudinal is made with one wire, varying in size from a No. 12 gauge up to and including a one-half inch diameter, and that with the stranded longitudinal is composed of two or three wires varying from No. 12 gauge up to and including No. 4 wires stranded or twisted together with a long lay. These longitudinals, either solid or stranded, are invariably spaced 4-inch centres, the sizes being varied in order to obtain the desired cross sectional area of steel per foot of width.

The transverse or diagonal cross wires are so woven between the longitudinals that perfect triangles are formed by their arrangement, thereby not only lending additional carrying strength

**LONGITUDINALS SPACED 4-INCH CENTERS
CROSS WIRES SPACED 4-INCH CENTERS**

Number and Gauge of Wires, Areas per Foot Width and Weights per 100 Square Feet
Styles Marked * Usually Carried in Stock

Style Number	No. of Wires Each Long	Gauge of Wire Each Long	Gauge of Cross Wires	Sectional Area Long Sq. In.	Sectional Area Cross Wires	Cross Sectional Area per Ft. Width	Approximate Weight per 100 Sq. Ft.
4	1	6	14	.087	.025	.102	43
5	1	8	14	.062	.025	.077	34
6	1	10	14	.043	.025	.058	27
* 7	1	12	14	.026	.025	.041	21
*23	1	1 1/2	12 1/2	.147	.038	.170	72
*24	1	4	12 1/2	.119	.038	.142	62
25	1	5	12 1/2	.101	.038	.124	55
*26	1	6	12 1/2	.087	.038	.110	50
27	1	8	12 1/2	.062	.038	.085	41
28	1	10	11 1/2	.043	.038	.066	34
29	1	12	12 1/2	.026	.038	.049	28
31	2	4	12 1/2	.238	.038	.261	106
32	2	5	12 1/2	.202	.038	.225	92
33	2	6	12 1/2	.174	.038	.196	82
34	2	8	12 1/2	.124	.038	.146	63
35	2	10	12 1/2	.086	.038	.109	50
36	2	12	12 1/2	.052	.038	.075	37
38	3	4	12 1/2	.358	.038	.380	151
39	3	5	12 1/2	.303	.038	.325	130
40	3	6	12 1/2	.260	.038	.283	114
41	3	8	12 1/2	.185	.038	.208	87
*42	3	10	12 1/2	.129	.038	.151	66
43	3	12	12 1/2	.078	.038	.101	47

Length of Rolls: 150-ft., 300-ft. and 600 ft.

Widths: 18-in., 22-in., 26-in., 30-in., 34-in., 38-in., 42-in., 46-in., 50 in., 54-in., and 58-in.

to the longitudinal or tension members, but positively spacing them and providing a most perfect distribution of the steel. These diagonal cross or transverse wires are woven either two or four inches apart, as is desired. It is the most perfect reinforcement for concentrated loads, distributing the stress imposed by the load throughout the floor slab. A hinge joint is provided on each longitudinal, which enables this reinforcement to be folded longitudinally in any desired shape, making it adaptable to all kinds of concrete construction. Its design provides a most perfect mechanical bond between the steel and the concrete, and from the fact that it is not galvanized (unless specifically ordered) the maximum adhesive bond is developed.

Triangle Mesh Woven Wire Reinforcement for Concrete is made with either solid or stranded longitudinal members, properly spaced by means of diagonal or cross wires so arranged as to form a series of triangles between the longitudinal or tension members; the longitudinal members being invariably spaced four inches apart, the cross wires either two inches or four inches apart, as desired, providing either a two inch or four inch mesh. The sizes of both longitudinals and cross wires are varied in order to provide the cross sectional areas of steel required to meet the conditions.

Triangle Mesh Reinforcement, we believe, is the most efficient material on the market for the purposes:

It provides a more even distribution of the steel, reinforcing in every direction.
Tension or carrying members accurately spaced.

A most perfect mechanical bond.

When a specific size of fabric or area of steel is specified, it is impossible to leave out any portion of the reinforcement.

Minimum cost of installation.

Easily handled and stored on the work.

Low cost of inspection.

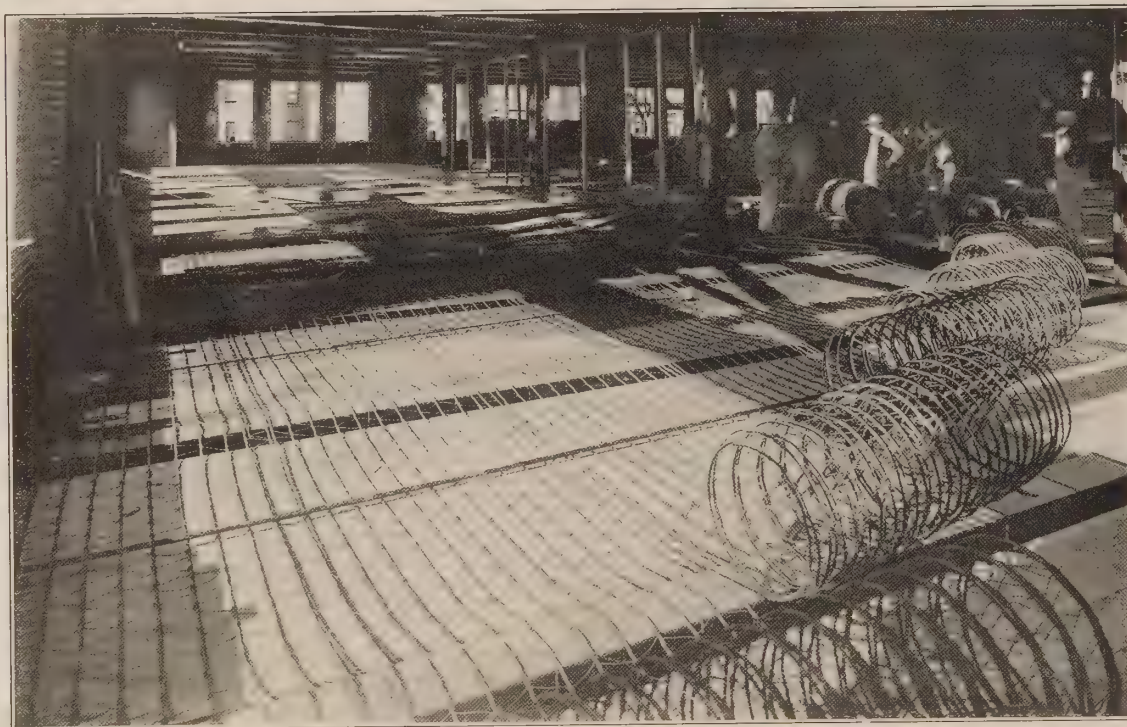
**LONGITUDINAL SPACED 4-INCH CENTERS
CROSS WIRES SPACED 2-INCH CENTERS**

Number and Gauge of Wires, Areas per Foot Width and Weights per 100 Square Feet

Style Number	No. of Wires Each Long	Gauge of Wire Each Long	Gauge of Cross Wires	Sectional Area Long Sq. In.	Sectional Area Cross Wires Sq. In.	Cross Sectional Area per Ft. Width	Approximate Weight per 100 Sq. Ft.
4-A	1	6	14	.087	.050	.102	53
5-A	1	8	14	.062	.050	.077	44
6-A	1	10	14	.043	.050	.058	37
7-A	1	12	14	.026	.050	.041	31
23-A	1	1 1/2	12 1/2	.147	.076	.170	86
24-A	1	4	12 1/2	.119	.076	.142	76
25-A	1	5	12 1/2	.101	.076	.124	70
26-A	1	6	12 1/2	.087	.076	.110	64
27-A	1	8	12 1/2	.062	.076	.085	56
28-A	1	10	12 1/2	.043	.076	.066	48
29-A	1	12	12 1/2	.026	.076	.049	42
31-A	2	4	12 1/2	.238	.076	.261	120
32-A	2	5	12 1/2	.202	.076	.225	107
33-A	2	6	12 1/2	.174	.076	.196	97
34-A	2	8	12 1/2	.124	.076	.146	74
35-A	2	10	12 1/2	.086	.076	.109	64
36-A	2	12	12 1/2	.052	.076	.075	52
38-A	3	4	12 1/2	.358	.076	.380	165
39-A	3	5	12 1/2	.303	.076	.325	145
40-A	3	6	12 1/2	.260	.076	.283	129
41-A	3	8	12 1/2	.185	.076	.208	101
42-A	3	10	12 1/2	.129	.076	.151	81
43-A	3	12	12 1/2	.078	.076	.101	62

Length of Rolls: 150-ft., 300-ft. and 600-ft.

Widths: 18-in., 22-in., 26-in., 30-in., 34-in., 38-in., 42-in., 46-in., 50-in., 54-in. and 58-in.



PEERLESS GARAGE

Boston, Mass.

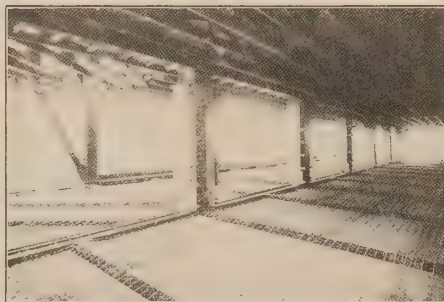
J. R. WORCESTER & CO., Engineers

G. B. H. MACOMBER CO., Contractors

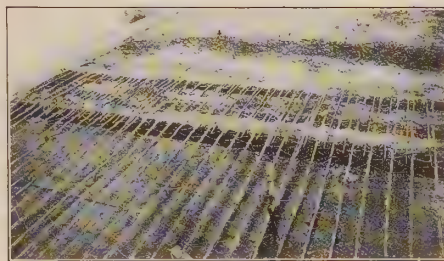
7 foot 6 inch Span. 4 inch Slab. 150 pounds live load per square foot.

90,000 SQUARE FEET TRIANGLE MESH, STYLE 40 USED

THE PENN METAL CEILING AND ROOFING CO., LTD., BOSTON, MASS.



White Building, Seattle, Wash. Built by Stone & Webster, Boston, Mass.
Triangle Mesh Reinforcement Used



Triangle Mesh Reinforcement in Place
 Style 33 in foreground Style 23 in background



Showing Triangle Mesh Reinforcement for Roof Construction



Triangle Mesh in Mill Floor Construction



Ponemah Mills, Taftville, Conn.
 F. P. Sheldon & Sons, Engineers J. W. Bishop, Contractors
Triangle Mesh Concrete Reinforcement Used



Triangle Mesh Reinforcement in Balcony Floor for Theatre or Coliseum

A. JEROME MURPHY

FRANKLIN R. HINDLE

BENJAMIN W. WRIGHT

MURPHY, HINDLE & WRIGHT
ARCHITECTS
PROVIDENCE

Dec. 29, 1909.

Penn Expanded Metal Co.,

Boston, Mass.

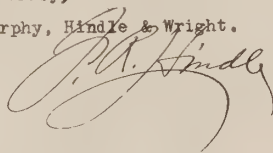
Mr. F. M. Johnson, Mgr.

Dear Sir:

We have your letter of the 27th regarding the floor tests in the House of the Good Shepherd. We have also received the report of the engineer showing results which are extremely gratifying. We feel that this will prove a good recommendation for the wire fabric which you furnished for the concrete re-inforcement. We are in receipt also of the photograph of the 300 lb load and desire to thank you for same. We also thank you for your good wishes and beg to return the compliment.

Yours truly,

Murphy, Hindle & Wright.



FRE:

THE PENN METAL CEILING AND ROOFING CO., LTD., BOSTON, MASS.

J. R. WORCESTER
E. E. PETTEE
G. H. BRAZER
MEMBERS AM. SOC. C. E.

J. R. WORCESTER & CO.
CONSULTING ENGINEERS
79 MILK STREET
BOSTON

TELEPHONE "MAIN 413"
CABLE ADDRESS
"JAYCESTER, BOSTON"

March 7, 1911.

Mr. F. M. Johnson,
Penn Metal Company,
201 Devonshire St., Boston.

Dear Sir:-

We consider the triangular mesh reinforcing fabric made by the
American Steel & Wire Company to be a very satisfactory form of reinforcement
for reinforced concrete slabs.

Yours truly,

J. R. WORCESTER & CO.,
By, *C. E. Pettee.*

F. P. SHELDON
1870

LONG DISTANCE TELEPHONE
1784 AND 1785 UNION
W. U. T. CODE USED

A. N. SHELDON
1903

F. P. SHELDON & SONS

MILL, HYDRAULIC,
STEAM AND ELECTRICAL ENGINEERS

F. L. SHELDON
1907

INDUSTRIAL TRUST
BUILDING

PROVIDENCE, R. I. Feb. 25, 1911.

Penn Metal Products Co.,
201 Devonshire St.,
Boston, Mass.

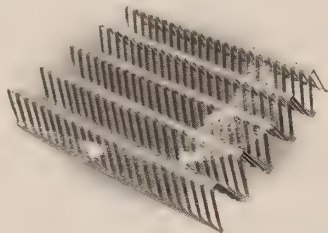
Gentlemen:-

Replying to your circular letter of the 21st in regard to
Triangular Wire Fabric, beg to say, we have used many thousands of feet
of your product not only on the Ponemah Mills weave shed, a cut of
which is on your letter head, and for which we are the engineers, but
also on the Pierce Bros., Pierce Mfg. Corp., Jos. Benn & Sons, Inc.,
and several others.

Yours truly,

Dict. A.N.S.-P.

F. F. SHELDON & SONS.



“Trussit”

DURABILITY, low maintenance expense and reasonable first cost are three cardinal requisites of a modern structure. At the same time the building should be fireproof, to reduce the expense of insurance to a minimum. Facility of erection must also be considered. TRUSSIT completely meets these requirements and permits the use of reinforced concrete for all those structures to which it has heretofore been unsuited owing to the heavy expense of the forms necessary in ordinary concrete construction.

TRUSSIT is a corrugated expanded steel reinforcing sheet for fire retarding roofs, walls and partitions erected **without the use of forms or centering.**

TRUSSIT is simply attached to the supporting members of the framework and then coated with a Portland cement mortar, or fine concrete, and finished with cement mortar or plaster, making a thoroughly reinforced concrete structure with any surface desired.

For curtain walls and interior partitions, TRUSSIT can be used with the corrugations running either horizontally or vertically. Temporary framing or bracing will be required only until the first coat of mortar has set.

Specifications and complete instructions in regard to TRUSSIT and methods of using it, will be supplied upon request.

Standard size sheets are 15½ in. by 96 in. (10.3 sq. ft.) and are packed 10 sheets, or 103 sq. ft. per bundle.

Gauge				WEIGHT PER SQ. FT.	
				Black	Galvanized
24	For Roofs and Curtain Walls	-	-	1.02 lb.	1.10 lb.
27	For Partitions	-	-	0.71 lb.	0.86 lb.

24 gauge **Trussit** is carried in lengths from 4 ft., 0 in., to 8 ft. 0 in., increasing by steps of 6 in., and also 8 ft. 4 in. long.

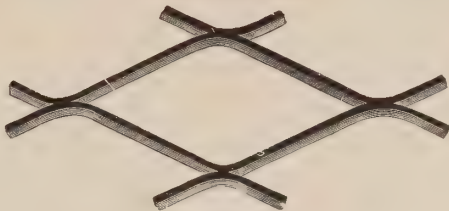
Trussit Clips—When specified in order, 50 standard clips per square (100 sq. ft.) for attaching **Trussit** to structural steel, will be supplied without charge. In ordering clips it is necessary to give the size and shape of members to which the **Trussit** is to be attached: also in case the clips are to be used on an angle, it must be stated whether the **Trussit** will rest on the edge or the flat surface of the flange.



Paper Mill at Winsor, Me.

Hollingsworth & Whitney Paper Co.

Trussit Metal Used in All Roofs
Triangle Mesh Concrete Reinforcement Used in All Floors



Penn Expanded Metal

Diamond Mesh Expanded Metal Reinforcement

BY AN IMPROVED PROCESS

THE SUPERIORITY OF THIS PRODUCT CONSISTS IN THE FOLLOWING

The metal is not stretched, strained or weakened. There is no danger of crystalization of the steel. The full strength of the steel. The process of manufacture induces no initial stress in the steel. It requires no annealing. It is never brittle. The original thickness and sectional area are not diminished.

Weight for weight, **Expanded Metal** has greater reinforcing value than any other material. It has been found to be efficient in reinforced concrete structures of so many and such varying types that but brief mention need be made of the advantages that have been demonstrated in its long continued and successful use.

Diagonal strands, forming diamond shaped mesh, provide the best possible stress distribution. All the steel is of value as reinforcement, and none of it used merely to space the load carrying members. Any tendency on the part of the mesh to elongate under stress and to close up on the sides, subjects the concrete to compression, and is effectually resisted.

The fact that **Expanded Metal** is made in sheets of convenient size reduces to a minimum the cost of placing the steel, particularly in work where it is difficult to handle reinforcement in large units. The sheets interlock when lapped, so that there is effective continuity of the reinforcement. In long-span work, by lapping sheets, additional reinforcement may be provided at the center of the slab where the bending moment is greatest.

We are prepared to name attractive prices, and to make quick deliveries of stock sizes. Other sizes made on special order.

The patents covering this improved process of manufacture are in no way involved in any litigation. Our customers are afforded complete protection in the use of our **Expanded Metal**.

WEIGHTS, SECTIONAL AREAS, WORKING LOADS AND STANDARD SIZES OF SHEETS EXPANDED METAL

Size of Mesh Short Way	Normal Thickness of Metal [Gauge]	Approximate Weight Per Square Foot	Net Sec. Area per Foot of Width [in Square Inches]	Standard Size Sheets	
				Long Way of Diamond	Short Way of Diamond
3 inch	10	.51 pounds	.150	6' and 8' and 10'-6''	4' and 7'
3 "	10	.6 "	.176	6' and 8' and 10'-6''	4' and 6'
3 "	10	.9 "	.265	6' and 8' and 10'-6''	4' and 6'
5 "	10	1.2 "	.353	6' and 8' and 10'-6''	4' and 6'
3 "	16	.225 "	.066	6' and 8' and 10'-6''	4' and 6'
2 1/4 "	16	.3 "	.088	8' and 10' -6''	4' and 6'
2 1/2 "	16	.56 "	.164	8' and 10' -6''	4' and 6'
1 1/2 "	12	.66 "	.104	8'	3' and 4' and 5'
3/4 "	13	.84 "	.246	8'	3' and 4' and 5'

== Hunt Metal Corner Bead ==

A wall is no stronger than its weakest point, which is to say--LOOK TO YOUR CORNERS!

There never was a plaster made that could withstand the wear and tear to which the corner is always subjected without reinforcement. Now then--

Is it better to be constantly patching the plaster and renewing the decorations or to take up arms against a sea of troubles and expense by reinforcing the corners with Hunt Metal Corner Bead? End it before it begins.

When you can use a metal corner for practically no more than the cost of an all-plaster corner, and by so doing avoid future troubles and expense, there is certainly no doubt as to the advisability of specifying and demanding the use of Hunt Corner Beads in all structures of any consequence.

Hunt Metal Corner Bead preserves the corners intact and in perfect condition.

Hunt Beads not only protect corners—they also act as a reinforcement to the plaster itself.

They help to keep tenants happy.

They are an evidence of up-to-date construction, and a factor in quick and profitable renting.

They are everywhere used in the finest of modern structures.

They are endorsed by the leading authorities.

They have been a pronounced success from the standpoint of both contractors and owners.

Contractors prefer them to all others because of the ease with which they are installed and the consequent economy of time and labor.

Whatever your requirements, you can get a Hunt Bead that is exactly right for the particular class of construction in hand. The only corner bead made in special lengths up to 16 feet.

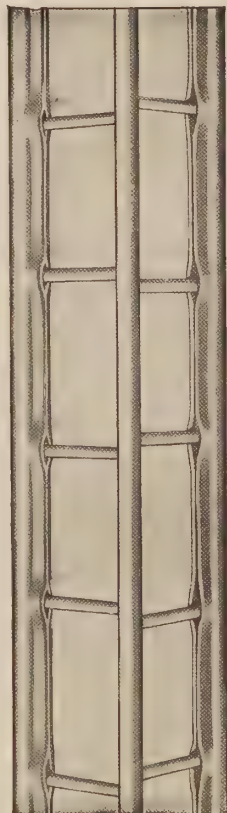
Don't waste time and effort or risk poor construction by trying to make one style of bead answer all requirements. Specify and insist upon a pattern of Hunt Metal Corner indicated by the specific use intended.



Hunt Metal Corner Bead

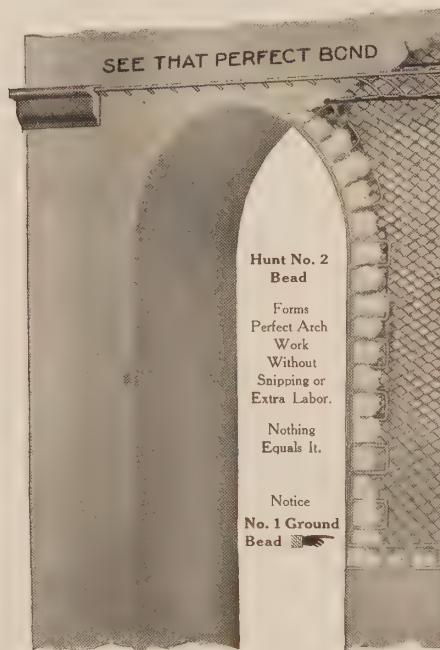
Is Superior to all others—BECAUSE

It offers a more perfect bond for the plaster. Plaster goes entirely into, around and through it; becomes a part of it, entirely solid; never shrinks away.



No. 1—Full Size

Weight, 275 pounds 1000
lineal feet



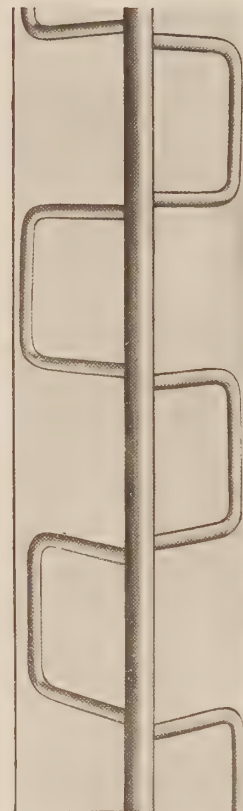
Hunt No. 2
Bead

Forms
Perfect Arch
Work
Without
Snipping or
Extra Labor.

Nothing
Equals It.

Notice
No. 1 Ground
Bead

Picture
Hanging or
Moulding
Bead



No. 2—Full Size

Weight, 190 pounds 1000
lineal feet

Hunt Bead not only protects the corners, it also acts as a reinforcement to the plaster itself. They are rigid and stiff, easier to place, and afford a surface for plaster.

Hunt No. 3 Bull Nose Corner Bead



At less expense than all plaster corner

The only Metal Bead that forms the regular Bull Nose Corner. The outer or finished face is a part of a circle $1\frac{1}{8}$ in. diameter, with a face width of $\frac{7}{8}$ inches, perfectly finished and drawn from cold rolled steel of such high quality as guaranteed to be doubled onto itself lengthwise the grain without cracking. Tough—Stiff—Rigid.

Thoroughly clinched to our No. 1 Perfect Bond Bead, thus making the strongest, stiffest, and most perfect Corner Bead known.

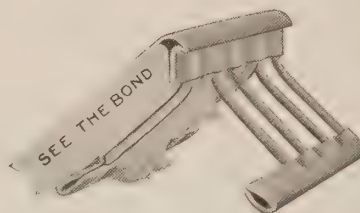
Note the dovetailing of the plaster back of the face of the Bead, and the **perfect bonding** through the back. Unsurpassed for practicability, quality and workmanship.

Galvanized with 94% pure zinc by our patented combination hot process, rendering the surface free from gloss or glaze, and far more susceptible to the adherence of plaster, paint or water colors.

Standing more than double the test required by the Telegraph and Telephone Companies.*

*Shipping weight, 450 pounds, 1000 lineal feet.

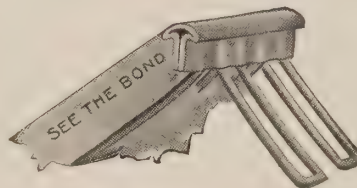
Hunt No. 4 Semi Bull Nose



No. 4 Special Edge 3-8 inch wide Corner, overlapping and interlocking the plaster, the back edges are the same general plan as No. 1.

Shipping weight 300 pounds 1000 lineal feet.

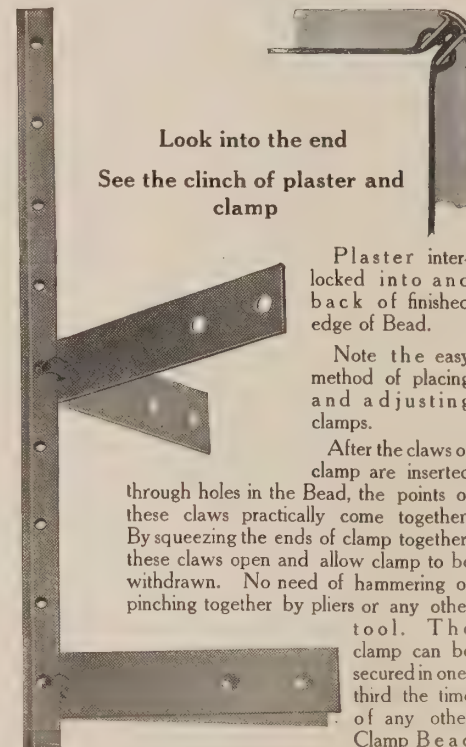
See the Perfect Bond



No. 5 Special is similar to No. 4, but having no back edge, thus readily adapting itself to all arch or circular work.

These Beads are made to meet a special demand for a large corner and at the same time having the thorough bonding or interlocking of Plaster and Bead that has made the **Hunt No. 1 and 2** so very popular.

Hunt No. 6 Clamp Corner Bead



Plaster interlocked into and back of finished edge of Bead.

Note the easy method of placing and adjusting clamps.

After the claws of clamp are inserted through holes in the Bead, the points of these claws practically come together. By squeezing the ends of clamp together, these claws open and allow clamp to be withdrawn. No need of hammering or pinching together by pliers or any other tool. The clamp can be secured in one-third the time of any other Clamp Bead on the market.

See metal strip—made from drawn steel in lengths from 6 to 16 feet—offers a splendid clinch for plaster. No chance for a feather edge. Bead and Clamps thoroughly galvanized.

Shipping weight, including clamp, 165 pounds 1000 lineal feet.



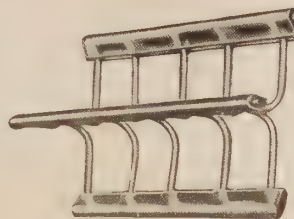
No. 1 Hunt Corner Bead applied to terra cotta

Hunt Metal Corner Bead

Hunt Metal Corner Bead has a continuous firm support. The force of a blow struck on Hunt Metal Corner is transmitted through the Bead to the wall backing—not through the plaster as is the case of others.



Ground Bead No. 7



Made for any thicknesses or grounds for plaster.

IT DOES THE WORK

No. 7 Ground Bead

Non-Shrinking Solid as a Rock

No cracks or Rat-Holes for Microbes, Vermin or Fertilizers. Clean. Tile or Cement with plaster above, **Hunt Metal Ground** between. Used extensively in Hospital and Sanitary Construction.

Hunt Double Grip Wall Plug

Made from heavy galvanized stock, and then galvanized after formed. No raw edge to rust out.

Plugs are made alternating. They grip the nail on top and bottom, and on each side.

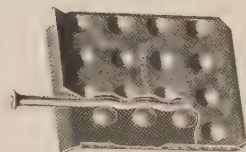
Nails will not pull out and cannot swerve.

Weight, 130 pounds per 1000.



Full Size

Hunt Double Grip Wall Plug and Combination Wall Tie



See the grip on the nail.



The Alternating Plug does the work.



Plug used and sold with or without Wall Tie.

Bull Dog Wall Tie



Shipping Weight 50 pounds per 1000.

Made from **Drawn Steel Galvanized** 7, 8, 9 and 12 inches.

Never Slip Wall Tie

With Moist Drip in Center

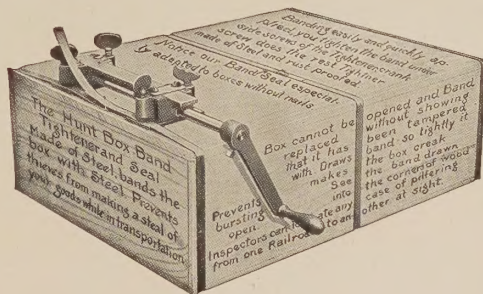


Galvanized after forming. No raw cut edge to rust.

Shipping weight 45 pounds per 1000.

The Hunt Box Band Tightener

Saves You Money and Trouble by Preventing Lost or Stolen Goods



Patent Applied For

SAVES NAILS

SAVES TIME

NO OTHER DEVICE BANDS A CASE SO QUICKLY OR SECURELY

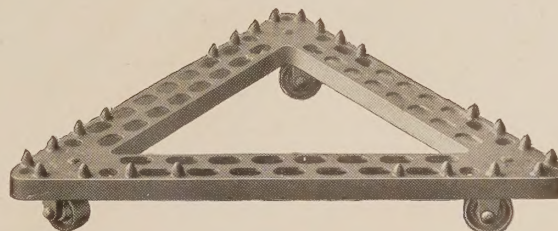
MADE OF STEEL, RUST PROOFED, AND DURABLE

3.4 INCH RIGHT AND LEFT SCREW DOES THE TIGHTENING

Special Sealing Device and No Nails for Pulp Board Boxes

== Hunt Truck ==

Can Carry Heavy Loads and Give First-Class Service To You



NO. 1 SIZE IS 21 INCHES ACROSS THE CORNERS, AND 3 INCHES FROM TOP TO FLOOR

ALL PARTS ARE MADE OF STEEL AND NOT CAST OR MALLE-ABLE IRON

WEIGHT 12½ POUNDS

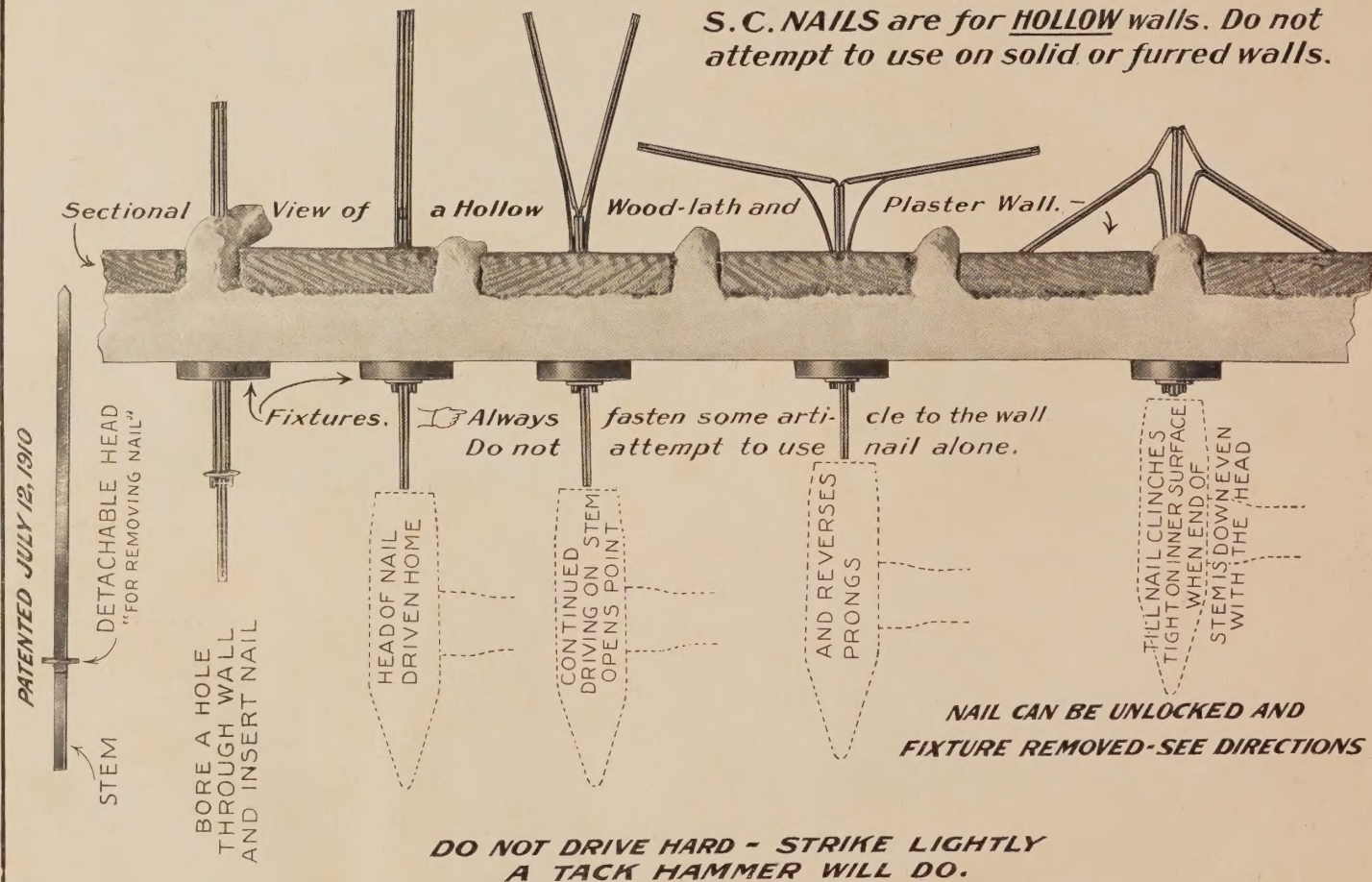
ALL WHEELS AND CASTERS HAVE STEEL ROLLER BEARINGS

ONE MAN CAN HAUL 1,000 POUNDS OF WIRE OR ZINC ON OUR FLOORS

How the Farrand Self-Clinching Wall-Nail Works

Can't Come Out—Till You Want It Out

S.C. NAILS are for HOLLOW walls. Do not attempt to use on solid or furred walls.



IN HOLLOW WIRE LATH CONSTRUCTION, such as is commonly encountered in the ceilings and side walls of modern fireproof buildings, there is not a single square foot of surface available to which fixtures may be attached by ordinary means. This is the peculiar opportunity of the **Self-Clinching Wall Nail**, for it alone of all fasteners, is able to secure a reliable hold at any point upon the surface of such a wall; and not only that, but it does it with a neat simplicity that is surprising to those who have heretofore worked and worried to make fastenings on such surfaces.

